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EXAMINER	
WOODS, ERIC V	
ART UNIT	PAPER NUMBER
2672	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/706,385	BRAUSS, MICHAEL
	Examiner	Art Unit
	Eric V. Woods	2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *17-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

New corrected drawings are required that are in compliance with 37 CFR 1.121(d) in this application because it is unknown what figures are which. There are either separate or duplicate drawings submitted in the Drawings packet (e.g. 23 pages of drawings, where there should only be 13). There are multiple versions of Figures 8-11. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The drawings are objected to because in Figure 1, the drawing is too close to the bottom margin of the page.

The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

> When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Specifically, pages 10-11 of the specification state that many necessary elements are omitted. However, this is not permitted, since 37 CFR 1.83(b) clearly indicates that such structures must be shown.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1104" has been used to designate both the third graph and the fourth graph in Figure 11 (see also specification page 13, lines 19-23).

The drawings are objected to because the word 'Monitor' in Figure 6, element 606 is misspelled as 'moniter'.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Color photographs and color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted, where the previously filed petition was **DENIED** on 16 August 2004. Any such petition must be accompanied by the appropriate fee set

forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification:

> **The patent or application file contains at least one drawing executed in color. The Office upon request and payment of the necessary fee will provide copies of this patent or patent application publication with color drawing(s).**

Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2).

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The preliminary amendment filed 27 August 2004 is objected to under 35 U.S.C. 132(a) because it introduces new and/or inaccurate matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows: that copies of the color drawings exist. The petition to include such drawings was **DENIED** on 16 August 2004. No new petition has been filed, and no change in the status of the petition has been entered in the file, regardless of applicant's request for reconsideration, **which must be filed as another petition as separate paper, not a request for reconsideration**. As such, the material is clearly inaccurate and must be removed. Finally, when the preliminary amendment was filed,

no separate petition fee was paid. Therefore, since no fee was supplied, any request for reconsideration was not processed and the reply is hereby held as insufficient and thusly any action by applicant now will be untimely and will not be considered. A new petition is required. See MPEP 1002.02(a) and (b), as well as 37 CFR 1.181.

Applicant is required to cancel the new matter in the reply to this Office Action.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, they have not been considered. Specifically, applicant needs to submit the numbers of relevant copending applications (as noted on page 18, lines 22-28) on an IDS under 37 CFR 1.97 and 1.98, unless applicant is specifically admitting that such materials are in fact relevant prior art that is eligible under 35 U.S.C. 102. If it is relevant to patentability, applicant has a duty under 37 CFR 1.56 and under MPEP 2001.04 and 2004 must submit material that is known that may be pertinent to patentability as per 37 CFR 1.97 and 37 CFR 1.98.

Election/Restrictions

Claims 17-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or

linking claim. Election was made **without** traverse in the reply filed on 15 August 2005, as confirmed by a phone interview with Timothy Baumann (40,502) on 19 August 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in claim 1 is a relative term that renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, in light of applicant's figures in the instant application, it is unknown what is meant by this term, since the plurality of graphs would be shown on the screen or display simultaneously. Therefore, the use of the term 'substantially' is inapposite in this situation and renders the claim indefinite.

Claims 2-16 do not correct the deficiencies of the parent claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure that is not enabling. A computer, which is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Specifically, a computer is critical to the practice of the invention, as noted in the specification. Amending independent claim 1 on the first line of the preamble by inserting the words 'computer-implemented' between 'A' and 'method' on the first line can obviate this rejection.

Claims 12-16 are rejected as not correcting the deficiencies of their parent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al (US 5,895,439 A) in view of Joffrain et al (US PGPub 2005/0035967 A1).

As to claim 1,

A method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising: (Preamble not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Directing energy at the portion of the part under test; (Fisher directs energy at a sample, e.g. to detect eddy current, where this is shown in Figure 4 and in 4:1-15 – the AC magnetic field)(Joffrain operates multiple networked measuring devices as in Figure 2A/2B, where they monitor the unit or process under test, where such include signal generators, transducers, and the like [0134, 0143, 0147, 0250, etc.])

-Detecting resultant energy from the portion of the part under test, the resultant energy formed by interaction of the directed energy with the portion of the part under test; (Fisher Figure 4, the eddy current probe 24 picks up such induced eddy currents and in 4:1-15)(Joffrain teaches that multiple Measurements are taken [0111] from the resultant instruments, which can include oscilloscopes, and the like [0011-0013] for receiving signals)

-Forming a plurality of graphs based upon the resultant energy, each of the graphs relating to a separate one of the plurality of material characteristics; and (Fisher generates a plurality of data sets, since it performs the scan at various (x, y) positions across the device under test, and therefore shows such results in Figure 3b for

example. However, such results are used to generate complex data sets, such as that in Figures 5a and 5b)(Joffrain shows multiple outputs from the same device/unit under test gathered on the same screen, see for example Figure 6, 8H, 15D-15H, and the like) -Displaying the plurality of graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the plurality of graphs. (Fisher does not expressly teach the use of a plurality of graphs to allow simultaneous visual comparisons.)(Joffrain teaches displaying the results of such graphs on the same screen in different graphs in a simultaneous manner).

Fisher is directed to non-destructive testing (2:15-40) of a part (e.g. item on specimen scan positioner 22 in Figure 4). Fisher generates complex, multi-dimensional data sets as in Figures 1 and 2 and typically shows such data sets as three-dimensional objects (Figures 5A-5B) or overlaid scans (as in Figure 3B). Such data can include many different properties of material – e.g. electrical properties and the like (3:44-60), which can be used for detecting flaws and the like. The data sets produced can be complex and can be viewed in 3 dimensions. However, this method has certain flaws, namely that the operator must turn the view around to see all of the applied solid and similar limitations (8:17-42), and that the data can be superimposed with respect to position as in Figure 3b. Additionally, as noted in the Abstract, the three-dimensional solid is generated with the third-dimension being the orthogonal distance between the points, not the actual x and/or y distances. Therefore, it would be desirous if the operator could see at least an x-y position plot of the various data points, two or more three-dimensional views with only the x or y eddy current differences shown, or similar.

Finally, multiple sets of characteristics can be acquired from both eddy-current systems and other NDE systems (Abstract) and **different** characteristics (such as varying electrical characteristics) can be acquired that relate to the flaw (3:44-60). Such data would therefore require more than one three-dimensional figure to show the more than one characteristics acquired, since the eddy current solid only shows real and imaginary components versus distance. Indeed, Fisher admits in 8:15-33 that analysis of the three-dimensional solid is done as a function of position **along one physical coordinate**. Clearly, it would be advantageous to be able to view the solids along both physical coordinates in order to determine extent and size of such a flaw, as noted above, since both x and y position were varied.

Joffrain is directed towards a system that manages and controls many different real instruments, as in the Abstract, [0003-0012], Figure 2A, and the like. This system can take multiple measurements of a device simultaneously, so long as the device in question can communicate with the host PC or controller system.

For at least the above reasons, it would be obvious that having multiple graphs of the various characteristics measured by the eddy current probe on the screen at the same time would be valuable, and that multiple NDE and test systems could be used on a part simultaneously, since LabView can perform motion control (see element 138, Figure 2A) of the unit under test (e.g. a control stage, as in Fisher), so that multiple instruments, not simply the eddy current measuring device of Fisher, could be used to analyze and measure the results of applying a signal to the device under test. The system of Fisher could obviously be controlled by the system of Joffrain, and this would

allow at least the benefits noted above. Further, the system of Fisher could then show multiple two (or three) dimensional graphs on the screen simultaneously as in Joffrain to facilitate a better understanding of how all the parameters are related to each other and the like. Therefore, for at least the above reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Fisher and Joffrain, since Fisher provides improved data visualization and Joffrain allows for better control and more simultaneous measurements. Joffrain also produces 3D surfaces [0371].

As to claim 2, Joffrain clearly teaches displaying such graphs on the same screen in Figures 6, 8G-8H, 15D-15F, and the like.

As to claim 3, clearly Fisher teaches gathering eddy current data as discussed above.

As to claim 4, Joffrain teaches in [0239-0247] the graphs are aligned with respect to time and each other on the same time-equivalent axis since they are signals. Such data could include the time-varying components of the eddy current generated by Fisher or many other types of signals, or the response of the sample across multiple ranges and instruments to the applied signal, which could be shown, or the like.

As to claim 5, Fisher clearly teaches that in Figures 5A and 5B as well as Figure 3B that the color is varied to illustrate variances in the measured data (8:9-16 for example, where shading is clearly intensity) and clearly the displays in Figures 5A and 5B highlight variations (flaw locations) in the material characteristics as recited.

As to claim 8, Joffrain teaches the use of such systems in real-time production environments [0106, 0116-0117, and the like].

As to claim 11, Fisher teaches that such three-dimensional surfaces are rotated t allow the user a better view (7:60-8:10). Therefore it would have been obvious that the user could rotate one or more three-dimensional objects simultaneously or with respect to each other if so desired.

As to claim 12, Fisher clearly teaches that the magnitude of the induced eddy current is measured, where Joffrain further teaches in [0193, 0293, 0400, and the like] that output signals are measured and graphed versus input signals such that the attenuation of the input signals can be measured and displayed.

As to claim 16, clearly Fisher measures the device in different x and y directions to obtain accurate measurements of its characteristics and the location of flaws.

Claim 6 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1 above, and further in view of Barg et al (US 6,707,454 B1).

Fisher and Joffrain do not expressly teach this limitation, but as noted in the discussion of claim 1, Fisher certainly collects data with respect to position, and allows the user to view the solids as a function of x or y position or time only, as in 8:17-32, where such information could be useful, particularly viewing the data in multiple directions at the same time or similar limitations, particularly if other types of data besides simply the eddy current were being obtained. Joffrain teaches that indeed, various types of data can be viewed simultaneously in multiple windows (see Figure 6

for example). There is certainly strong argument that such capability would be desired and that such data visualization **should** occur, as noted above, and that the references fairly suggest such.

Barg expressly teaches visualizing multiple data sets simultaneously in multiple windows, where in Figures 2-3, 8-10, and the like, a three-dimensional view is shown and the user can then control which two-dimensional views of the object (or other dimensional views where the number of dimensions can certainly be larger than 3 – for example, see 1:60-2:25, and it is directed generally to data visualization – see 1:20-25. Clearly the user can select the desired number of plots, variables, and the rest ((Barg clearly teaches, as noted above, that Barg teaches how analyzing such data from multiple perspectives across several views can be advantageous (3:20-38). The side graphs displayed as items 112 in Figure 2 are different dimensional views (e.g. two-dimensional) views of the three or higher order dimensional data sets – see also Figure 3, Figures 8-10, and 7:15-55, where clearly there are multiple of what Barg terms 'dimensional views,' and the user can control which are shown, specifically in 6:50-7:15, where the use can select desired dimensional views and the desired items within one window. Specifically, Barg allows the user to exclude any desired data columns or sets from the views (as in 16:50-17:20), and the user can also select the ROI using the select mode 8:47-55—select a portion of the three-dimensional multiscape view.) Barg is a system for visualizing multi-dimensional business process data, for example, as shown in (1:60-2:25), and is intended for use with any kind of multi-dimensional (process) data, as in 3:15-35, 34:1-64, and the like. Barg clearly teaches the existence

of multiple two-dimensional windows; where the user can select a region of interest using various methods, such as selection, exclusion, zooming, and the like. The two-dimensional data sets are interactive.

Motivation for combining Bar with Fisher and Joffrain may be found in the above discussions, where the ability to view multiple two-dimensional views of n-dimensional data and the three-dimensional view simultaneously facilitates trend analysis and visualization, for example (3:1-35), and Fisher is known to produce coarse data requiring interpolation to produce the solids in any case (8:9-16).

Claim 7 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher and Joffrain as applied to claim 1, and further in view of Lundy et al (US 4,812,976 A).

As to claim 7, the display of isoclines or isobars that highlight differences and variations in the graph is well known in the art. One example of this is Lundy Figures 6 and 7, where in Figure 5 such isoclines are highlighted, where 4:55-5:20, and they are taught to highlight variances in the graph and to identify potential flaws. Lundy is related to the same problem-solving area, that of using graphic visualization to find flaws that might otherwise not be found (5:15-20). Clearly, the fact that such highlighting allows problems that would not otherwise be found – and the emphasis in the graphic illustration of such isoclines – would help an operator in Fisher to better find such flaws, which provides motivation for combination. Therefore, it would have been obvious to modify Fisher in view of Joffrain to use that particular technique of Lundy.

Claim 9 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1, and further in view of Hao et al (US PGPub 2003/0208323 A1).

Joffrain and Fisher do not expressly teach this limitation. Hao teaches (Abstract) that forces exerted by objects in a physics-based visualization environment are computed by, amongst other things, using the gradient operator or similar functions [0040]. Hao allows for accurate visualizations of the interactions between objects, and further allows for better visualization of changing fields (e.g. the gradient operator, which is well known in the art to visualize changing fields and the like) [0030, 0008-0012]. Therefore, it would have been obvious to one of ordinary skill in the art to modify the system of Fisher/Joffrain to utilize the gradient operator, which is inherently a 'calculus operation.'

Claim 10 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1, and further in view of Bachrach (US 6,505,140 B1).

Fisher and Joffrain do not expressly teach this limitation, although Fisher teaches positioning a sample to take measurements and acquiring such measurements, as does Joffrain. Bachrach, which is directed to the same problem solving area, e.g. positioning an object under test, deriving measurements, and then visualizing the results, clearly teaches that it is advantageous to position a sensor within an optimal height of the surface (which is notoriously obvious in the art) and then to map the surface profile of the device so as to determine which areas are usable or functional or not. This is

clearly beneficial, as if certain areas or regions of the part are not usable or cannot be measured; the system saves time and potential damage by not examining such regions, and beneficially generates the most effective mapping by measuring the rest of the object at the optimum or similar (5:45-6:12). Clearly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such techniques for at least the above reasons.

Claims 1 and 13 is rejected under 35 U.S.C. 103(a) as unpatentable over Hassler et al (US PGPub 2005/0154563 A1) in view of Joffrain.

A method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising: (Preamble not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Directing energy at the portion of the part under test; (Hassler obtains data from passing x-rays through device for non-destructive testing – for example, [0005], which would constitute part of the means for providing a 3D representation – e.g. the X-ray obtained (CAT-style) data set in item 10 of Figure 1, as in [0013-0015])(Joffrain operates multiple networked measuring devices as in Figure 2A/2B, where they monitor the unit or process under test, where such include signal generators, transducers, and the like [0134, 0143, 0147, 0250, etc.])

-Detecting resultant energy from the portion of the part under test, the resultant energy formed by interaction of the directed energy with the portion of the part under test; (Hassler obviously detects the radiation it sends at a device – this is inherent in a CAT system as in [0013].)(Joffrain teaches that multiple Measurements are taken [0111] from the resultant instruments, which can include oscilloscopes, and the like [0011-0013] for receiving signals)

-Forming a plurality of graphs based upon the resultant energy, each of the graphs relating to a separate one of the plurality of material characteristics; and (Hassler clearly forms a plurality of two-dimensional representations containing non-normal areas (see item 48, Figure 4), where clearly these results would constitute a 'plurality of graphs')(Joffrain shows multiple outputs from the same device/unit under test gathered on the same screen, see for example Figure 6, 8H, 15D-15H, and the like)

-Displaying the plurality of graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the plurality of graphs. (Joffrain teaches displaying the results of such graphs on the same screen in different graphs in a simultaneous manner).

Joffrain is directed towards a system that manages and controls many different real instruments, as in the Abstract, [0003-0012], Figure 2A, and the like. This system can take multiple measurements of a device simultaneously, so long as the device in question can communicate with the host PC or controller system.

Hassler is directed to a system that generates and analyzes data from flaws, particularly that generated by x-ray systems for determining flaws in parts of the like.

However, the final results are not shown graphically, whilst Joffrain clearly shows graphical output.

For at least the above reasons, it would be obvious that having multiple graphs of the various characteristics measured by the eddy current probe on the screen at the same time would be valuable, and that multiple NDE and test systems could be used on a part simultaneously, since LabView can perform motion control (see element 138, Figure 2A) of the unit under test (e.g. a part in a 2-D x-ray system), so that multiple instruments, not simply the x-ray system of Hassler, could be used to analyze and measure the results of applying a signal to the device under test. The system of Hassler could obviously be controlled by the system of Joffrain, and this would allow at least the benefits noted above. Therefore, for at least the above reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Hassler and Joffrain, since Hassler provides improved data visualization and Joffrain allows for better control and more simultaneous measurements. Joffrain also produces 3D surfaces [0371].

As to claim 13, clearly the system of Hassler uses x-rays, and detects them.

Claim 13 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher and Joffrain as applied to claim 1, and further in view of Hassler.

Joffrain and Fisher do not expressly teach the use of x-rays.

Hassler is directed to a system that generates and analyzes data from flaws, particularly that generated by x-ray systems for determining flaws in parts of the like.

However, the final results are not shown graphically, whilst Joffrain clearly shows graphical output. Clearly, the system of Hassler uses x-rays and detects them.

For at least the above reasons, it would be obvious that having multiple graphs of the various characteristics measured by the eddy current probe on the screen at the same time would be valuable, and that multiple NDE and test systems could be used on a part simultaneously, since LabView can perform motion control (see element 138, Figure 2A) of the unit under test (e.g. a part in a 2-D x-ray system), so that multiple instruments, not simply the x-ray system of Hassler, could be used to analyze and measure the results of applying a signal to the device under test. The system of Hassler could obviously be controlled by the system of Joffrain, and this would allow at least the benefits noted above. Therefore, for at least the above reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Hassler and Joffrain, since Hassler provides improved data visualization and Joffrain allows for better control and more simultaneous measurements. Joffrain also produces 3D surfaces [0371]. Finally, the system of Hassler would another complement to the system of Fisher to allow two different types of NDE systems to be used for testing purposes.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1, further in view of Banes et al (US PGPub 2003/0182069).

As to claim 14, Fisher and Joffrain do not expressly teach generating a report of the material characteristics of a unit or device under test. Banes clearly teaches that generating reports and/or graphical representations of such data is useful [0016], as is well known in the art. Banes is directed to the same problem solving area that of measuring the characteristics of a device or unit under test and visualizing the results, in this case in report format. This is well known in the art, and clearly having such results in graphical or report format would be prima facie useful such that the end results of such a system could be stored. Therefore, for at least the above reasons, it would have been obvious to modify Fisher in view of Joffrain to generate such reports of material and/or device properties as per Banes.

As to claim 15, clearly the system of Banes measures the mechanical properties of whatever it is testing [0016-0017], which can include stress, true stress, true strain, and all sorts of properties similar to that group listed in claim 15 [0045]. It would have been obvious that an electronic device could be so tested for determining its overall mechanical characteristics, which would be useful to determine survivability, vulnerability to shaking (for satellite use) and the like.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahn et al (US PGPub 2004/0260178 A1) in view of Schwarz (US 5,952,576 A).

As to claim 1,

A method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising: (Preamble not

given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Directing energy at the portion of the part under test; (Kahn clearly in Figure 2 generates ultrasound waves and sends them into the target part under test using beamformer 210 transmitting through transducer probe 205)(Schwarz Figure 1 directs multiple beams of ultrasound of different frequencies using drive transducers D_A - D_N at a part P under test, and receives such returned ultrasound waves with receive transducers R_A - R_B)

-Detecting resultant energy from the portion of the part under test, the resultant energy formed by interaction of the directed energy with the portion of the part under test; (Kahn receives such ultrasound waves via the beamformer [0029] and processes them) (Schwarz Figure 1 directs multiple beams of ultrasound of different frequencies using drive transducers D_A - D_N at a part P under test, and receives such returned ultrasound waves with receive transducers R_A - R_B)

-Forming a plurality of graphs based upon the resultant energy, each of the graphs relating to a separate one of the plurality of material characteristics; and (Kahn – Results of such data are shown simultaneously in Figure 6 [0106], where they are plotted on separate graphs within the same display area)(Schwarz shows such results in Figures 3A-3C)

-Displaying the plurality of graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the plurality of graphs. (Clearly, Kahn Figure 6 shows the graphs on the same screen, which fairly is "substantially simultaneous" for purposes of visual comparison)

Kahn clearly teaches a system that provides for all the limitations, but in the interests of facilitating prosecution since Kahn only applies to a fetus as an example (which examiner contends is "a part under test", since Office policy is to give claims their broadest reasonable interpretation (In re Morris, In re Hyatt, etc). However, in the interests of facilitating prosecution, and since Kahn does specify that his system can be used to derive images of any particular item [0121, 0004] and data from various methods, Schwarz is brought in to show that an ultrasound system can be used to test any of a variety of parts or devices for defects – see 1:5 – 2:4, which clearly provide evidence that improved speed can be achieved for scanning parts where simultaneous scans at different frequencies are used, which would also advantageously speed up the scans of Kahn, where both B-mode and other scans could take place simultaneously in such a manner (or multiple frequencies could be simultaneously tested, etc.). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was add certain functionality of Schwarz to Kahn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric V. Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-4:30 alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Woods

PRIMARY EXAMINER

October 21, 2005